REMARKS

FORMAL MATTERS:

Claims 27, 31, 32, 34-38, and 52-78 are pending and under review after entry of the amendments set forth herein.

Claims 28-30, 33 and 39-45 are canceled without prejudice.

Claims 27, 31, 32, 34-38, 46, and 48 are amended. Support for these amendments is found on page 5, lines 16-19; page 11, line 15; page 11, line 21; page 12, line 26; page 13, line 19; page 14, line 3; and page 14, line 15.

Claims 52-78 are added. Support for these claims may be found as follows: Claims 52, 53 and 54: page 9, lines 12-18. Claim 55: page 9, lines 23-24; page 5, lines 16-19; page 11, line 20. Claim 63: page 9, lines 23-24; page 5, lines 16-19; and p. 11, lines 11-23. Claim 71: page 9, lines 23-24; page 10, line 17 and page 11, line 13. Claims 56, 64, and 72 (antibiotics and ions): page 9, lines 12-18. Claims 57, 65, and 73 (types of antigens): page 14, lines 23-25. Claims 58, 66, and 74 (rabies): page 34, lines 13-14. Claims 59, 67, and 75 (inactivated rabies): page 34, lines 15-18. Claims 60, 68, and 76 (humoral/cell mediated immune response): page 35, lines 8-16. Claims 61, 69, and 77 (solid or liquid form): page 17, lines 10-13. Claims 62, 70, and 78 (freeze dried): page 17, lines 14-16.

No new matter is added. As such, the Examiner is requested to enter the above amendments.

INTERVIEW SUMMARY:

Applicants thank Examiner Le for the courtesy of conducting an interview on March 17, 2009 with Applicant's representatives to discuss the rejections in the non-Final Office Action dated February 10, 2009. Applicants discussed adding the limitations of pending claims 28 and 33 to independent claims 27 and 31, respectively, which Examiner Le indicated would be sufficient to overcome the 35 USC § 102(b) rejection over Zong et al. Also discussed were arguments on the teachings in the art that demonstrate that the subject invention would not be obvious from the cited references, which Examiner Le indicated would be considered as overcoming the 35 USC § 103 rejection over Zong et al. in view of Morahan et al. Also discussed was providing a full English translation for the Zong et al. reference cited in the IDS

filed January 23, 2008, which translation is provided herein (Zong_Engl transl_ChineseJPharmAnalysis.pdf). Also discussed was the filing of Terminal Disclaimers to overcome the obviousness type rejections set forth in the Office Action, which Terminal Disclaimers have been provided herein.

INFORMATION DISCLOSURE STATEMENT:

The Applicants note that an Information Disclosure Statement (IDS), including an SB/08A form, is submitted herewith. The Applicants respectfully request that the Examiner initial and return this SB/08A form, thereby indicating that the references cited in the IDS have been reviewed and made of record. For the Examiners convenience, a copy of this form is enclosed herewith.

STATEMENT UNDER 37 C.F.R. §§1.56 AND 1.2

Applicants hereby advise the Examiner of the status of a co-pending application in compliance with the Applicant's duty to disclose under 37 C.F.R. §§1.56 and 1.2 (see also MPEP §2001.06(b)) as discussed in *McKesson Info. Soln. Inc., v. Bridge Medical Inc.*, 487 F.3d 897; 82 USPQ2d 1865 (Fed. Cir. 2007).

The Applicants wish to bring to the Examiner's attention that a Response to an Office Action was mailed on December 17, 2008 in co-pending U.S. Patent Application No. 11/331,575, filed January 13, 2006. A Response to an Office Action was mailed on December 22, 2008 in co-pending U.S. Patent Application No. 11/331,839, filed January 13, 2006. An IDS was mailed on February 9, 2009 in co-pending U.S. Patent Application No. 12/160,584, filed November 12, 2008.

These documents are available on PAIR, and thus are not provided with this communication.

REJECTIONS UNDER §112, ¶2

Claim 30 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention

The Applicants have canceled Claim 30, rendering this rejection moot. Accordingly, this rejection may be withdrawn.

REJECTIONS UNDER §102

Claims 27, 29-32 and 34-37 are rejected under 35 U.S.C. 102(b) as being anticipated by Zong et al., as evidenced by Lin et al.

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Bros. v. Union Oil of California*, 814 F.2d 628, 631, (Fed. Cir. 1987).

The standard for anticipation under section 102 is one of strict identity. An anticipation rejection requires a showing that each limitation of a claim be found in a single reference, *Atlas Powder Co. v. E.I. DuPont de Nemours & Co.*, 224 U.S.P.Q. 409, 411 (Fed. Cir. 1984). Further, an anticipatory reference must be enabling, see *Akzo N.V. v. United States Int'l Trade Comm'n* 808 F.2d 1471, 1479, 1 U.S.P.Q.2d 1241, 1245 (Fed. Cir. 1986), *cert denied*, 482 U.S. 909 (1987), so as to place one of ordinary skill in possession of the claimed invention. To anticipate a claim, a prior art reference must disclose every feature of the claimed invention, either explicitly or inherently. *Glaxo v. Novopharm, Ltd.* 334 U.S. P.Q.2d 1565 (Fed. Cir. 1995).

Newly amended Claim 27 recites "a polynucleotide adjuvant composition . . . wherein the composition contains polynucleotide adjuvant composition molecules heterogeneous for at least one of molecular weight or size, wherein the molecular weight is in a molecular weight range of from 338,000 to 1,200,000 Daltons and wherein the size is in a molecular size range of from 13.5 to 24.0 Svedbergs." Newly amended Claim 31 recites "a polynucleotide adjuvant composition . . . wherein the polynucleotide adjuvant composition has an average molecular weight equal to or greater than 338,000 Daltons or has an average molecular size equal to or greater than 13.5

Svedbergs." Thus, the pending independent claims upon which all other pending claims depend recite that the polynucleotide adjuvant composition is 13.5 to 24.0 Svedbergs or has an average molecular size equal to or greater than 13.5 Svedbergs.

The Examiner asserts that "Zong et al teaches PICKCa" (p. 4, l. 15), and that "The PICKCa of Zong et al. has a molecular size ranging from 7.8-13.4S." (p. 5, l. 1-2) The Examiner concludes from this that "In the instant case, the PICKCa of Zong et al. is the same as those claimed. Therefore, Zong et al. anticipates the claimed invention." (p. 5, l. 3-4)

The Applicants submit that the independent claims as amended recite that the poly (I-C) of the claimed composition are 13.5 to 24.0 Svedbergs or have an average molecular size equal to or greater than 13.5 Svedbergs. Zong et al. does not disclose this claim element, and hence does not anticipate the pending claims. Reconsideration and withdrawal of the rejection is requested.

REJECTIONS UNDER §103(A)

Claims 27-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zong et al. in view of Morahan et al. and by Lin et al.

In order to meet its burden in establishing a rejection under 35 U.S.C. §103, the Office must first demonstrate that a prior art reference, or references when combined, teach or suggest all claim elements. *See, e.g., KSR Int'l Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 1740 (2007); *Pharmastem Therapeutics v. Viacell et al.*, 491 F.3d 1342, 1360 (Fed. Cir. 2007); MPEP § 2143(A)(1). In addition to demonstrating that all elements were known in the prior art, the Office must also articulate a reason for combining the elements. See, *e.g., KSR* at 1741; *Omegaflex, Inc. v. Parker-Hannifin Corp.*, 243 Fed. Appx. 592, 595-596 (Fed. Cir. 2007) citing *KSR*. Further, the Supreme Court in *KSR* also stated that "a court *must* ask whether the improvement is more than the predictable use of prior art elements according to their established functions." *KSR* at 1740; emphasis added. As such, in addition to showing that all elements of a claim were known in the prior art and that one of skill had a reason to combine them, the Office must also provide evidence that the combination would be a predicted success.

As discussed above, newly amended Claim 27 recites "a polynucleotide adjuvant composition . . . wherein the composition contains polynucleotide adjuvant composition molecules heterogeneous for at least one of molecular weight or size, wherein the molecular weight is in a molecular weight range of from 338,000 to 1,200,000 Daltons and wherein the size is in a molecular size range of from 13.5 to 24.0 Svedbergs." Newly amended Claim 31 recites "a polynucleotide adjuvant composition . . . wherein the polynucleotide adjuvant composition has an average molecular weight equal to or greater than 338,000 Daltons or has an average molecular size equal to or greater than 13.5 Svedbergs." Thus, the pending independent claims upon which all other pending claims depend recite that the polynucleotide adjuvant composition is 13.5 to 24.0 Svedbergs or has an average molecular size equal to or greater than 13.5 Svedbergs.

The Examiner asserts that "Regarding claims 28 and 33, Zong et al. does not teach of a PICKCa having molecular size to about 13.5 to 24.0S and equal to or greater than 13.5S." The Examiner further asserts that "Morahan et al. teaches that the adjuvant activity contributed by PIC correlates with molecular size. Morahan et al. establishes that adjuvant activity increases as molecular size increases. Thus, at the time the invention was made, it would have been prima facie obvious in the art to increase the molecular size of the PICKCa of Zong et al." (p. 6, l. 4-10)

The Applicants submit that, as discussed above, the independent claims as amended recite that the molecular weight of the claimed composition is 13.5 to 24.0 Svedbergs or has an average molecular size equal to or greater than 13.5 Svedbergs. Zong et al. does not teach or suggest this claim element, and hence does not make obvious the pending claims.

Furthermore, the Applicants submit that Morahan et al. does not remedy the deficiencies of Zong et al. because, contrary to the Examiner's assertions, Morahan et al does not teach that adjuvant activity increases as molecular size increases.

Table 1, reproduced below, demonstrates the data collected by Morahan et al. of antiviral activity by poly (I-C)s of different molecular sizes:

TABLE 1. *Relationship of size of poly(I·C) to antiviral activity*

Poly(I·C)	Dose (mg/kg) i.v. 2	1	0.5	0.33	0.11	0.075	0.019	PD_{50} (mg/kg)	95% Confidence limit (mg/kg)
40S (CK19)	3/19*	6/29	4/11	13/20	9/20	8/10	10/10	0.25	0.15–0.42
11S (CK23)	2/20	10/30	4/10	16/20	13/20	9/10	10/10	0.44	0.29–0.67
18S (CK24)	2/17	10/20	N.D.	9/20	17/20	N.D.	N.D.	0.48	0.29–0.80
8S (CK22)	2/20	17/30	17/20	8/9	7/10	10/10	10/10	0.95	0.63–1.44
PL-Ref.	0/10	5/20	N.D.	10/20	10/10	10/10	10/10	0.41	0.27–0.61

* No. dead/total. Mice were inoculated i.v. with the dose of poly(I·C), and 24 hr later, i.v. with 50 LD_{50} of encephalomyocarditis virus. The 50% protective dose (PD_{50}) was calculated by probit analysis with the 95% confidence limits indicated. The mortality of control animals in these experiments was 83/92 (90%). N.D. = not determined.

Significant overlap of the 95% confidence limit (see right-most column) exists between the antiviral activity elicited by poly(I-C)s of molecular sizes 8S, 11S and 18S and between poly(I-C)s of molecular sizes 11S, 18S and 40S. Thus, this data of Morahan teaches that no significant difference in antiviral activity is elicited by poly(I-C)s of molecular sizes within these ranges. Accordingly, one of ordinary skill in the art would be able to draw no conclusions and make no predictions from the teachings of Morahan et al. with regard to the effects that increasing molecular size above 8S will have on the ability of poly(I-C) to induce antiviral activity.

Likewise, Table 2, reproduced below, demonstrates the data collected by Morahan et al. of immunological enhancement by poly (I-C)s of different molecular sizes:

TABLE 2. *Immunologic enhancement by poly(I·C)*

Complex	Hemolysin titer (log_2) 2 mg poly(I·C)/kg	Hemagglutination titer (log_2) 2 mg poly(I·C)/kg	PFC/10^6 spleen cells 1 mg poly(I·C)/kg
Control	7.9 ± 0.32	9.03 ± 0.26	130 ± 20
Poly(I·C)			
40S (CK19)	N.D.	10.15 ± 0.28*	215.6 ± 30*
25S (RK14)	11.1 ± 0.18*		
12S (TY15)	10.5 ± 0.17*		
11S (CW12)	9.7 ± 0.22*		
11S (CK23)	N.D.	10.60 ± 0.17*	196.9 ± 37
18S (CK24)	N.D.	9.75 ± 0.19*	N.D.
8S (CK22)	N.D.	9.60 ± 0.26	153.2 ± 21

* Values are significantly different from the control at $P < 0.05$. N.D. = not determined; PFC = plaque-forming cells.

As the asterisks in the table demonstrate, the only statistically significant differences in immune response that were observed by Morahan et al. were between any size poly(I-C) and the control composition (saline alone; see materials and methods). Morahan et al. teaches no statistically significant differences between the immune response elicited by different sizes of poly(I-C) for any of the three assays performed.

Furthermore, when one compares the values provided in Table 2, a trend of no change or even of decreased immunological response vis a vis hemagglutination antibodies was observed with increase in Poly (I-C) molecular size (Table 2, col. 2: 11S induces a titer of 10.6, whereas 18S and 40S induce lower titers of 9.75 and 10.15, respectively. Note also that the upper limit of the range observed for 8S of 9.86 is virtually identical to the lower limit of the range observed for 40S of 9.87). Accordingly, one of ordinary skill in the art would be able to draw no conclusions and make no predictions from the teachings of Morahan et al. with regard to the effects that increasing molecular size above 8S will have on the ability of poly(I-C) to enhance an antibody-based immune response.

Thus, one of ordinary skill in the art would not be able to predict with any expectation of success from the data of Morahan et al. that a composition comprising polynucleotide adjuvant

composition molecules in the size range of 13.5-24.0 Svedbergs or equal to or greater than 13.5 Svedbergs as recited in the pending claims would be a better adjuvant than a composition comprising polynucleotide adjuvant composition molecules of 5-8S as taught by Lin et al. or 7.8-13.4S as taught by Zong et al. Therefore, contrary to the Examiner's assertions, it would not have been obvious to the ordinary skilled artisan following the teachings of Morahan et al. to increase the molecular size of polynucleotide adjuvant composition molecules in their polynucleotide adjuvant composition to greater than 8S as taught by Lin et al. or 13.4S as taught by Zong et al. so as to increase adjuvant activity. Accordingly, Zong et al. in view of Morahan et al. and by Lin et al. do not make obvious the pending claims. Reconsideration and withdrawal of the rejection is requested.

DOUBLE PATENTING REJECTIONS

The following four obviousness-type double patenting rejections have been made:

- Claims 27-45 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of copending Application Serial No. 11/331,575.

- Claims 27-45 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of copending Application Serial No. 11/331,839.

- Claims 27-45 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 9 of copending Application Serial No. 12/160,853.

- Claims 27-45 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 2 of copending Application Serial No. 12/160,584.

The Examiner noted that timely filed Terminal Disclaimers in compliance with 37 C.F.R. §1.321(c) or 1.321(d) may be used to overcome actual or provisional rejections on these grounds.

The Applicants submit that Application Serial No. 12/160,853 is unrelated to the pending application. The claims of Application Serial No. 12/160,853 are directed to the "Purification of 1,2,3,3,3-Pentafluoropropene by Extractive Distillation" (see title) and as such, are patentably distinct from those of the pending application. However, the Applicants note that Application Serial No. 12/160,583 does have a common inventor and common assignee with the pending application. The Applicants assume that the Examiner transposed numbers in the course of drafting this rejection; accordingly, they will treat the obviousness-type double patenting rejection as being over Application Serial No. 12/160,583.

Terminal Disclaimers prepared in accordance with 37 C.F.R. §1.321(c) and (d) are enclosed. The signed Terminal Disclaimers obviate the above obviousness-type double patenting rejections for copending Applications Nos. 11/331,575, 11/331,839, 12/160,584, and 12/160,583.

The Applicants note that the filing of a terminal disclaimer to obviate a rejection based on non-statutory double patenting is not an admission of the propriety of the rejection.[1][1] As such, while the Applicants firmly believe that this rejection fails to meet the requirements for Obviousness-Type Double Patenting set forth in MPEP § 804, a terminal disclaimer is filed to obviate the rejection.

Withdrawal of this rejection is respectfully requested.

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[1][1] *Quad Environmental Technologies Corp. v. Union Sanitary District*, 946 F.2d 870, 20 USPQ2d 1392 (Fed. Cir. 1991) (finding that "filing of a terminal disclaimer simply serves the statutory function of removing the rejection of double patenting, and raises neither a presumption nor estoppel on the merits of the rejection.").

CONCLUSION

Applicant submits that all of the claims are in condition for allowance, which action is requested. If the Examiner finds that a telephone conference would expedite the prosecution of this application, please telephone the undersigned at the number provided.

The Commissioner is hereby authorized to charge any underpayment of fees associated with this communication, including any necessary fees for extensions of time, or credit any overpayment to Deposit Account No. 50-0815, order number NBMP-001(SP).

Respectfully submitted,
BOZICEVIC, FIELD & FRANCIS LLP

Date: May 8, 2009

By: /Carol L. Francis, Reg.No.36513/
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Enclosure(s): IDS
NBMP-001_Terminal Disclaimer.doc
Zong_Engl transl_ChineseJPharmAnalysis.pdf

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